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RESPONSE TO OFFICE ACTION

REMARKS:

Claim 1-7 are currently pending in the application. Claims 1-7 stand rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement. Claims 1-4 stand rejected under 35 U.S.C. § 103 as being anticipated by U.S. Patent No. 4,409,453 to Smith ("Smith") in view of U.S. Patent No. 4,480,164 to Dills ("Dills"). Claims 5-7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of Dills as applied to Claim 4, and further in view of U.S. Patent No. 5,166,487 to Hurley ("Hurley"). Further, Claim 1 stands rejected on the ground of obviousness-type double patenting as being anticipated over claims 1 and 3 of U.S. Patent No. 6,874,495 in view of U.S. Patent No. 4,480,164 to Dills and rejected on the same ground as being unpatentable over claims 1-3 of U.S. Patent No. 7,055,518 in view of U.S. Patent No. 4,480,164 to Dills. Claims 1,4 and 5 stand rejected on the grounds of nonstatutory obvious-type double patenting as being unpatentable over claims 1,10 and 11 of copending application No. 11/098,280 (now U.S. Patent No. 7,360,533) in view of U.S. Patent No. 4,480,164 to Dills.

Rejections Under 35 U.S.C. § 112

4. Claims 1-7 stand rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement.

The examiner states:

"that the claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. In regard to claims 1-3, applicant has amended claim 1 and introduced new claims 2 and 3 that describe that the cooking rack, and first and second gas directing means "remain stationary" or include "stationary discharge plates". However, review of the specification as originally filed does not appear to provide any discussion as to a requirement that these components "remain stationary" in order to

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function. Further, review of the entire document as originally filed does not support the above noted claim limitations requiring certain elements remain stationary.

In regard to claim 7, the disclosure as originally filed does not appear to support the added limitations that the microwave energy is delivered to the oven cavity “without a mechanical microwave waveguide phase altering device.” Applicant’s disclosure does provide some discussion as to the desirability of eliminating turntables generally associated with microwave ovens (see specification pp. 13-14) but this discussion does not appear to correspond to the elimination of a “phase altering” device.”

Applicant respectfully disagrees. The specification, as originally filed, supports claims 1-7. Specifically regarding claims 1-6 applicant directs the examiner’s attention to:

page 36, lines 12-21, entire page 37 and page 38, line 1; and

page 38, lines 11-13.

On pages 36, 37 and 38 applicant teaches stationary discharge plates” On page 36, applicant states that the gas discharge plates (223a, 223b) “are positioned within oven cavity 202...”. On page 37, applicant teaches that “the center discharge sections 295a and 295b can be set at an angle that can be adjusted from zero degrees to ninety degrees as referenced from the horizontal bottom wall.” Further on page 37 applicant goes on to teach that “adjustments may be made either at the site of manufacture or, alternatively in some instances, adjusted by the user as desired.”

On page 38, lines 11-13 applicant teaches that the “gas discharge plates 223a, 223b, 295a, 295b and 227a and 227b may be fabricated in a manner that allows for change-out of the plates.”

Applicant clearly and specifically teaches that the gas discharge plates are stationary within the oven and can be “**positioned, set or adjusted**” by the manufacturer, and/or, in some instances, by the operator. It is clear from the specification that there is no motion of the gas

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discharge plates within the oven but rather the plates are "set" to a pre-determined angle from zero to ninety degrees as referenced from the oven bottom.

Applicant specifically teaches in applicant's drawings "stationary" gas discharge plates wherein racks (Fig 1) 208a, 208b are supported by gas discharge plates 290a, 290b and 227a, 227b. Fig 1 clearly discloses and teaches a rigid, fixed, set and/or positioned gas discharge plate upon waveguides 220a, 246a and 246b. Further, in the event these elements were not stationary, there would be some description by applicant of how they move and the means for moving them. The absence of any such description provides further support for the term "stationary". By way of example applicant describes a hinged door 209, Fig. 2, page 26, line 21 and page 27, lines 1-4 wherein the hinged door which may be "swung" between an open position and a closed position. There is no such description of "swinging" or non-stationary discharge plates as asserted by the examiner.

Regarding claim 7, applicant draws the examiner's attention to the specification as originally filed:

page 7, entire page and page 8,

page 13, lines 18-21, continuing to page 14, line 1

page 20, lines 13-14; and

page 50, line 21.

On page 7, applicant describes prior art ovens utilizing bottom or top launch microwave systems. Due to the launching orientation (top or bottom), various drawbacks occur within these ovens (hot spots, line 8; resulting in reduction in microwave energy) said drawbacks being compensated by mode stirrers (line 17) or turntables (line 18). These prior systems also did not provide for multiple rack ovens (line 16). As applicant states, page 13, lines 18-21 and 14, line 1: "Especially lacking in these ovens is the ability to cook in the corner sections of the oven. With other technologies, means to overcome this problem are complex and have at least partially been

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solved by rotation of the food product under air jets with the use of a turntable. Using rotation (turntable) to compensate for jet non-uniformity also has the effect of reducing useful cooking area of the appliance by at least approximately 25%.”

Applicant submits that one reasonably skilled in the art recognizes that a “mode stirrer” is a type of phase altering device, and was sought to be avoided by applicant’s invention. Applicant fully describes a side launch microwave system with no mode stirrers or phase altering devices. The absence of these mechanical devices allows applicant’s invention to be “simple and economical to manufacture” (page 50, line 21).

Rejections Under 35 U.S.C. § 103(a)

5. Claims 1-4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,409,453 to Smith in view of U.S. Patent No. 4,480,164 to Dills.

Claim 1 stands rejected under 35 U.S.C. § 102 (b) as being unpatentable over U.S. Patent No. 4,409,453 to Smith.

The Examiner states that “Smith discloses in the specification and figures. I-XVIII an invention in the same field of endeavor as applicant’s invention and as described in applicant’s claims 1-4. In particular, in regard to at least claim 1, Smith shows a speed cooking oven (1) for cooking a food product by hot gas comprising:

- (a) an oven cavity (interior cavity of 1)
- (b) a cooling surface formed by either the shelf (104) as shown in Figs. 2 and 7
however this shelf is possibly not regarded as a “cooking rack”;
- (c) a conduit means (at least plenum 35 and upper and lower chambers bounded by plates 82,83) associated with the cooking chamber (79), said conduit means providing for the circulation of the gas to and from the cooking chamber (see Figs 2 and 3);
- (d) flow means (30) for causing circulation of the gas (see col.6, lines 4-8);

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- (e) a thermal means (50) for heating the gas;
- (f) a control means (24-28) for controlling the gas (see col. 5, lines 63-67);
- (g) a first gas directing means associated with the conduit means and disposed above the food product (see at least the central upper jet 81 in Fig. 6, which is produced from a tube 90 as shown in Fig. 2 or see the middle tube 126 producing jet 81b of Fig. 8);
- (h) a second gas directing means disposed above the food product (see at least the rightmost jet 81 in Fig. 6, which is produced from tube 90 as shown in Fig. 2 or see the right most tube 126 producing jet 81c in Fig. 8);
- (i) the first and second gas directing means in Smith are stationary. However Smith does not disclose that the.....”

(The applicant has not further finished the sentence of (i) above because said portion was not present in the office action received by the applicant. Therefore the applicant is without knowledge as to exactly what the examiner meant to concede in section (i)).

The Examiner goes on to state that: “In regard to the recitations that the first and second gas directing means are configured to cause gas from these means to collide upon the upper surface of the food product, these recitations are considered present in Smith. Specifically, in describing Fig. 8, Smith notes that the high velocity jets (81) impinge upon the surface of a food product (P) “to provide very rapid heat transfer and very rapid water vapor removal from the surface of the product.” (Smith, col. 10, lines 45-51). Further, Smith also describes that the jets (81) after striking a solid surface are “transformed into a turbulent mushroom shaped pressure area” (se col. 1, lines 6-10). The examiner considers that the above noted descriptions suggest that the gas jets from the gas directing means in either Fig. 6 (unshown tubes 90) or Fig. 8 (upper tubes 126) noted above collide with one another as described. The following are segments of Fig. 6 and Fig. 8 to further illustrate what the examiner considers to be the colliding flows.”

The examiner has also added arrowheads pointing to specific areas of Figs. 6 and 8 of Smith and continues:

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In regard to section (i), in Smith the first and second gas directing means either tubes/apertures (90 or 126) are understood to be stationary.” However, Smith does not disclose that the cooking shelf (104) is moveable relative to the jet plate (124) (see col. 11, lines 11-14) either through the use of the moveable racks (108), through a rotating disc (see col 11, lines 14-17) or through a conveyor (see col. 11, lines 41-45). It is the movement of the cooking surface that enables the jets to “sweep” over the food product which is intended to promote browning of the food (see abstract, col. 3, lines 46-55, col 4, lines 9-16). **However, as the cooking surface moves, it is not regarded as being stationary.”**

Applicant respectfully requests the examiner to explain why the examiner “understands the tubes/apertures to be stationary” regarding the Smith invention. Applicant desires to understand why such an “understanding” exists on the part of the examiner with reference to Smith 4,409,453 but yet, according to the examiner’s current Final Rejection the same “understanding” does not exist regarding applicant’s “stationary gas discharge plates”.

Additionally, applicant agrees with the examiner that the cooking surface of Smith is NOT STATIONARY.

The examiner continues

“In regard to at least claim 2, the jet plates (85 or 124 or 385 in the second embodiment) are formed by plates that include multiple stationary apertures that directed the heated air to the food products (see at least Fig. 7 and the second embodiment Figs. 8 and 15). The plurality of stationary apertures formed in the jet plates meet the limitations of the first and second pluralities of stationary apertures.

Applicant disagrees. Smith teaches cooking of food product by “**discrete jets of heated high velocity air**” which are “**moved across the surface of a product to provide rapid heating**” (col. 4, lines 18-20). Smith is replete with references to discrete columnated jets of air

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contacting the food surface. For example, see Abstract wherein “spaced discrete high velocity jets of heated air to impinge against exterior surfaces of the food product” are described.

Smith teaches impingement of airflow against a food product surface.

Applicant teaches colliding airflow prior to said airflow contacting the food product surface. This is not impingement cooking and is not taught by Smith.

As with prior responses, applicant directs the examiner’s attention to Fig. 1 of applicant’s specification wherein applicant’s Fig. 1 depicts jet impingement of prior art inventions like that to Smith. (Applicant’s Fig. 1 looks exactly like examiner’s segment of Smith, Fig. 8). Prior to applicant’s invention, impingement cooking utilized discrete columnated jets of air in order to impinge against a food product surface, thereby cooking the food. Applicant’s invention specifically teaches away from impingement cooking.

Turbulent mixing of airflow(s) is detrimental to the invention of Smith and is to be avoided. Smith insures return gas flow will not be impeded by utilization of proper spacing of nozzles/jets and proper sizing and spacing of return air paths. Smith describes (col. 4, lines 18-20; col. 10, lines 62-68) jets of high velocity air moving across the surface of a food product. Smith also describes movement of the food product relative to the discrete jets (col. 9, lines 43-45). Without movement of either the jets relative to the food product or the food product relative to the jets, even cooking would not be possible. An undesirable “polka dot” browning (scorching) pattern results on the surface of the food product and indeed, one of the drawbacks of impingement cooking sought to be overcome by applicant’s invention is cooking without the scorching effect and without moving either the food product relative to the jets or the jets relative to the food product.

Unlike the Smith oven, applicant's oven functions with a minimum number of moving parts, thus reducing complexity and cost. It should be noted in this regard that Smith must move the food relative to the impinging air jets to avoid spot burning, so clearly it would not be obvious to eliminate this relative movement.

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Throughout Smith one finds references to “sweeping jets”, “sweeping airflow” etc. Because the Smith invention produces columnated airflow and the undesirable polka dot effect, a motion of either the jets or the food product is necessary. No such motion is necessary for applicant’s invention and indeed one of the advantages of colliding the airflow with itself of applicant’s invention is the elimination of mechanical means to “clean up” the negative effects of impingement style cooking. Applicant’s has amended claim 1 to specifically require a stationary cooking rack, and stationary first and second gas directing means.

Examiner states:

In regard to at least claim 3 though the apertures noted above are located in Smith along the top of the oven cavity, as shown at least in Fig. 7, each side of the oven cavity (i.e. the space within the oven 1) includes hot air directed from the apertures. At least two of the apertures on the left side of Fig. 7 and at least two of the apertures on the right side of Fig. 7 are a plurality of apertures that are “adjacent” opposite sides of the oven cavity.

Applicant disagrees that the 4 apertures on the top of the oven the examiner has located are similar to applicant’s invention and again responds:

Again, applicant responds that Smith teaches cooking of food product by “**discrete jets of heated high velocity air**” which are “**moved across the surface of a product to provide rapid heating**” (col. 4, lines 18-20). Smith is replete with references to discrete columnated jets of air contacting the food surface. For example, see Abstract wherein “spaced discrete high velocity jets of heated air to impinge against exterior surfaces of the food product” are described.

Smith teaches impingement of airflow against a food product surface.

Applicant teaches colliding airflow prior to said airflow contacting the food product surface. This is not impingement cooking and is not taught by Smith.

As with prior responses, applicant directs the examiner’s attention to Fig. 1 of applicant’s specification wherein applicant’s Fig. 1 depicts jet impingement of prior art inventions like that to

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Smith. (Applicant's Fig. 1 looks exactly like examiner's segment of Smith, Fig. 8). Prior to applicant's invention, impingement cooking utilized discrete columnated jets of air in order to impinge against a food product surface, thereby cooking the food. Applicant's invention specifically teaches away from impingement cooking.

Turbulent mixing of airflow(s) is detrimental to the invention of Smith and is to be avoided. Smith insures return gas flow will not be impeded by utilization of proper spacing of nozzles/jets and proper sizing and spacing of return air paths. Smith describes (col. 4, lines 18-20; col. 10, lines 62-68) jets of high velocity air moving across the surface of a food product. Smith also describes movement of the food product relative to the discrete jets (col. 9, lines 43-45). Without movement of either the jets relative to the food product or the food product relative to the jets, even cooking would not be possible. An undesirable "polka dot" browning (scorching) pattern results on the surface of the food product and indeed, one of the drawbacks of impingement cooking sought to be overcome by applicant's invention is cooking without the scorching effect and without moving either the food product relative to the jets or the jets relative to the food product.

Unlike the Smith oven, applicant's oven functions with a minimum number of moving parts, thus reducing complexity and cost. It should be noted in this regard that Smith must move the food relative to the impinging air jets to avoid spot burning, so clearly it would not be obvious to eliminate this relative movement.

Throughout Smith one finds references to "sweeping jets", "sweeping airflow" etc. Because the Smith invention produces columnated airflow and the undesirable polka dot effect, a motion of either the jets or the food product is necessary. No such motion is necessary for applicant's invention and indeed one of the advantages of colliding the airflow with itself of applicant's invention is the elimination of mechanical means to "clean up" the negative effects of impingement style cooking. Applicant's has amended claim 1 to specifically require a stationary cooking rack, and stationary first and second gas directing means.

Examiner rejects and states:

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"In regard to at least claim 4, as noted above, the apertures shown at least in Fig. 7, while along the top of oven wall are still properly regarded to be on opposite sides of the oven cavity as recited.

Applicant again responds that the examiner's point is irrelevant because Smith teaches cooking of food product by "discrete jets of heated high velocity air" which are "moved across the surface of a product to provide rapid heating" (col. 4, lines 18-20). Smith is replete with references to discrete columnated jets of air contacting the food surface. For example, see Abstract wherein "spaced discrete high velocity jets of heated air to impinge against exterior surfaces of the food product" are described.

Smith teaches impingement of airflow against a food product surface.

Applicant teaches colliding airflow prior to said airflow contacting the food product surface. This is not impingement cooking and is not taught by Smith.

As with prior responses, applicant directs the examiner's attention to Fig. 1 of applicant's specification wherein applicant's Fig. 1 depicts jet impingement of prior art inventions like that to Smith. (Applicant's Fig. 1 looks exactly like examiner's segment of Smith, Fig. 8). Prior to applicant's invention, impingement cooking utilized discrete columnated jets of air in order to impinge against a food product surface, thereby cooking the food. Applicant's invention specifically teaches away from impingement cooking.

Turbulent mixing of airflow(s) is detrimental to the invention of Smith and is to be avoided. Smith insures return gas flow will not be impeded by utilization of proper spacing of nozzles/jets and proper sizing and spacing of return air paths. Smith describes (col. 4, lines 18-20; col. 10, lines 62-68) jets of high velocity air moving across the surface of a food product. Smith also describes movement of the food product relative to the discrete jets (col. 9, lines 43-45). Without movement of either the jets relative to the food product or the food product relative to the jets, even cooking would not be possible. An undesirable "polka dot" browning (scorching) pattern results on the surface of the food product and indeed, one of the drawbacks of

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impingement cooking sought to be overcome by applicant's invention is cooking without the scorching effect and without moving either the food product relative to the jets or the jets relative to the food product.

Unlike the Smith oven, applicant's oven functions with a minimum number of moving parts, thus reducing complexity and cost. It should be noted in this regard that Smith must move the food relative to the impinging air jets to avoid spot burning, so clearly it would not be obvious to eliminate this relative movement.

Throughout Smith one finds references to "sweeping jets", "sweeping airflow" etc. Because the Smith invention produces columnated airflow and the undesirable polka dot effect, a motion of either the jets or the food product is necessary. No such motion is necessary for applicant's invention and indeed one of the advantages of colliding the airflow with itself of applicant's invention is the elimination of mechanical means to "clean up" the negative effects of impingement style cooking. Applicant's has amended claim 1 to specifically require a stationary cooking rack, and stationary first and second gas directing means.

The examiner then states:

"The examiner now turns to Dills to remedy the above noted deficiencies in Smith as to the lack of a stationary cooking rack. This reference is a combined microwave and hot air oven that functions as a browning system for food (see title and abstract). In Dills the browning oven includes a stationary cooking rack (38). Therefore the evidence suggests that in a combination microwave and hot air oven, as in each of Smith and Dills, "browning" of a food product may occur either through the use of a moveable food support (Smith) or a stationary cooking rack (Dills).

Accordingly it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the cooking surface of Smith to incorporate a stationary cooking rack as taught in Dills as the simple substitution of these two cooking surfaces to obtain

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the predictable result of forming a food support surface that enables food “browning” suggests a conclusion of the obviousness based on the evidence of record.”

Applicant disagrees. Utilizing a stationary cooking surface of Dill would eliminate the sweeping motion and result in the food being cooked in a non-uniform manner, which is against the express teaching of Smith. Dills merely recites a re-circulation oven wherein airflow moves in a continuous fashion through the oven cavity. The shelf 38, col. 4, lines 59-61 the examiner refers to is merely a stationary plate. Combining the shelf of Dills with Smith produces an inoperable device because the polka dot pattern (scorching of food product) sought to be avoided by Smith would exist in a combined device. Additionally, applicant teaches colliding airflow prior to the airflow reaching the food product surface. Neither Smith nor Dills teach colliding airflow.

Further Rejections Under 35 U.S.C. § 103(a)

7. **Claims 5-7** are rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith in view of Dills as applied to claim 4 above, and further in view of U.S. Patent No. 5,166,487 to Hurley (“Hurley”).

Smith and Dills disclose substantially all the limitations of claim 5-7 (note discussion above) with the exception of microwave waveguides that launch microwave energy from opposite sides of the oven cavity. In Smith, while it is anticipated that a microwave energy generator will be used in conjunction with the heated jets (see at least col 7, lines 3-21), Smith appears to only suggest the use of a single microwave energy generator.

Hurley teaches a combination microwave and hot air oven in the same field of endeavor as applicant’s invention and Smith. In Hurley, the microwave heating is enabled by multiple microwave generating magnetrons (12 and 14) that are desirably arranged “at opposite ends of the cooking chamber” (see col 5, lines 54-55) to direct microwave energy (15) to a food product.

Applicant disagrees. Please note above discussion of Smith and Dills with the following comments regarding Hurley:

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Hurley specifically describes mode stirrers (col 1, lines 20-22) stirring means (col. 1, lines 35-40, lines 45-68; col. 2, lines 24-27. The Hurley specification is replete with references to stirring means (col. 3, lines 37-43). Applicant does not disagree with the examiner that Hurley discloses more than one microwave source. The exact detail applicant refers the examiner to is that prior art ovens required a stirring means, mode stirrer or phase altering device in order to more efficiently distribute microwave energy. In a system such as applicant's wherein multiple waveguides and microwave sources are utilized the result sought is even distribution of microwave energy with no moving parts (mode stirrers, phase altering devices or stirring means). Applicant's disclosure teaches multiple waveguide and multiple microwave generating means without the need for such devices.

In regard to claims 6 and 7, neither Smith nor Hurley nor Dills suggest that the hot gas and microwave energy are mixed until they enter the oven cavity. Further, these references also do not appear to suggest "mechanical microwave waveguide phase altering device". Therefore neither claims 6 nor 7 distinguish applicant's invention over the prior art of record.

Therefore, in regard to claims 5-7, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the cooking oven of Smith to incorporate microwave energy devices at opposite sides of a cooking chamber as taught in Hurley as these locations are recognized in the art as desirable for directing microwave energy to a food product (see Hurley, col 5, lines 47-55).

Applicant disagrees and directs the examiner to applicant's response above.

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Obviousness-Type Double Patenting Rejection:

9. Claim 1 stands rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-3 of U.S. Patent No. 6,874,495 to McFadden in view of U.S. Patent No. 4,480,164 to Dills. Although the conflicting claims are not identical, the examiner asserts that they are not patentably distinct from each other because claim 1 of the current application is broader in scope but claiming the same invention as claims 1 and 3 of U.S. Patent No. 6,874,495, with certain exceptions.

Submitted herewith is a Terminal Disclaimer. It is respectfully submitted that this Terminal Disclaimer obviates the double patenting rejection. It is therefore respectfully requested that this rejection be reconsidered and withdrawn. Furthermore, the Applicant submits that claims 1-7 are in condition for allowance

Therefore, the Applicant respectfully requests that Claims 1-7 be allowed.

10. Claim 1 stands rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1-3 of U.S. Patent No. 7,055,518 to McFadden in view of U.S. Patent No. 4,480,164 to Dills. Although the conflicting claims are not identical, the examiner asserts that they are not patentably distinct from each other because claim 1 of the current application is broader in scope but claiming the same invention as claims 1-3 of U.S. Patent No. 7,055,518 with certain exceptions.

Submitted herewith is a Terminal Disclaimer. It is respectfully submitted that this Terminal Disclaimer obviates the double patenting rejection. It is therefore respectfully requested that this rejection be reconsidered and withdrawn. Furthermore, the Applicant submits that claims 1-7 are in condition for allowance

Therefore, the Applicant submits that Claims 1-7 are now in condition for allowance, and respectfully requests that Claims 1-7 be allowed.

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11. Claims 1, 4 and 5 stand rejected on the grounds of nonstatutory obviousness-type double patenting as being unpatentable over Claims 1, 10 and 11 of co-pending Application No. 11/098,280 (U.S. 7,360,533) in view of U.S. Patent No. 4,480,164 to Dills. Although the conflicting claims are not identical, the examiner asserts that they are not patentably distinct from each other because claims 1 of the current application is broader in scope but claiming the same invention as claims 1-3 of application 11/098,280 (U.S. 7,360,533), with certain exceptions.

Submitted herewith is a Terminal Disclaimer. It is respectfully submitted that this Terminal Disclaimer obviates the double patenting rejection. It is therefore respectfully requested that this rejection be reconsidered and withdrawn. Furthermore, the Applicants submit that claims 1, 4 and 5 are in condition for allowance

Therefore, the Applicant submits that Claims 1-7 are now in condition for allowance, and respectfully requests that Claims 1-7 be allowed.

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Conclusion:

The Applicant submits that all of the Examiner's rejections have been traversed and overcome, and that Claims 1-7 are in condition for allowance. Therefore, the Applicant respectfully requests that Claims 1-7 be allowed.

Respectfully submitted,



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